.≠4 ± 🛦 .€

SEQUENCE LISTING

```
<110> Fesik, Stephen W.
      Halbert, Donald N.
      McDowell, Jeffrey A.
      Schurdak, Mark E.
      Morgan-Lappe, Susan E.
      Sarthy, Aparna V.
<120> Method Of Killing Cancer Cells
<130> 7046.US.Z1
<160> 121
<170> FastSEQ for Windows Version 4.0
<210> 1
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc feature
<222> (20)...(21)
<223> N is deoxythymidine
<400> 1
                                                                    21
ggugauuggu cgaggagcun n
<210> 2
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20) ... (21)
<223> N is deoxythymidine
<400> 2
                                                                    21
agcuccucga ccaaucaccn n
<210> 3
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
```

<pre><221> misc_feature <222> (20)(21) <223> N is deoxythymidine</pre>	
<400> 3 aauucugaaa cgaugccccn n	21
<210> 4 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N is deoxythymidine	
<400> 4 ggggcaucgu uucagaauun n	21
<210> 5 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N is deoxythymidine	
<400> 5 caucgacuug gucaaagugn n	2:
<210> 6 <211> 21 <212> RNA <213> Artificial Sequence	÷
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N is deoxythymidine	
<400> 6 cacuuugacc aagucgaugn n	2:
<210> 7 <211> 21 <212> RNA <213> Artificial Sequence	

<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N is deoxythymidine	
<400> 7 aagcugacga gugaacuugn n	21
<210> 8 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N is deoxythymidine	
<400> 8 . caaguucacu cgucagcuun n	21
<210> 9 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 9 agetectega ceaateacet	20
<210> 10 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 10 ggggcatcgt ttcagaattt	20
<210> 11 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 11 cactttgacc aagtcgatgt	20

<210> 12 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 12 caagttcact cgtcagcttt	20
<210> 13 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N = deoxythymidine	
<400> 13 agccaagagg aaagaugggn n	21
<210> 14 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N = deoxythymidine	
<400> 14 cccaucuuc cucuuggcun n	21
<210> 15 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N = deoxythymidine	
<400> 15 gcgaauuacc ucagaacagn n	21

```
<210> 16
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N is deoxythymidine
<400> 16
                                                                    21
cuguucugag guaauucgcn n
<210> 17
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 17
                                                                    21
agguguuucu gucucaugcn n
<210> 18
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 18
                                                                     21
gcaugagaca gaaacaccun n
<210> 19
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
 <222> (20)...(21)
<223> N = deoxythymidine
```

	agaaggaac ugggaucucn n	21
<: <:	210> 20 211> 21 212> RNA 213> Artificial Sequence	
	220> 223> siRNA	
<	221> misc_feature 222> (20)(21) 223> N = deoxythymidine	
	400> 20 agaucccag uuccuucuan n	21
< <	210> 21 211> 21 212> RNA 213> Artificial Sequence	
	220> 223> siRNA	
<	221> misc_feature 222> (20)(21) 223> N = deoxythymidine	
	400> 21 acaaggguu ccuccaguun n	21
<	2210> 22 2211> 21 2212> RNA 2213> Artificial Sequence	
	220> 223> siRNA	
<	<pre>%221> misc_feature %222> (20)(21) %223> N = deoxythymidine</pre>	
	<400> 22 accuggagga acccuuguún n	21
<	<pre><210> 23 <211> 21 <212> RNA <213> Artificial Sequence</pre>	
	<220> <223> siRNA	
<	<221> misc feature	

```
<222> (20)...(21)
<223> N = deoxythymidine
<400> 23
                                                                      21
agucucgcau cagcuauagn n
<210> 24
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc feature
<222> (20)...(21)
\langle 223 \rangle N = deoxythymidine
<400> 24
                                                                      21
cuauagcuga ugcgagacun n
<210> 25
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 25
                                                                      21
guuacuugaa cgagaggugn n
<210> 26
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 26
                                                                      21
caccucucgu ucaaguaacn n
<210> 27
<211> 21
<212> RNA
<213> Artificial Sequence
```

<220>

<223>	siRNA	
<222>	<pre>misc_feature (20)(21) N = deoxythymidine</pre>	
<400> cgaga	27 gguga acauucugan n	21
<210><211><211><212><213>	21	
<220> <223>	siRNA	
<222>	<pre>misc_feature (20)(21) N = deoxythymidine</pre>	
<400> ucaga	28 auguu caccucucgn n	21
<210><211><211><212><213>	21	
<220> <223>	sirna	
<222>	misc_feature (20)(21) N = deoxythymidine	
<400> aacau	29 accuuc agcuggugan n	21
<210><211><211><212><212>	→ 21	
<220> <223>	> sirna	
<222	<pre>> misc_feature > (20)(21) > N = deoxythymidine</pre>	
<400> ucaco	> 30 cagcug aaggauguun n	21
<2103 <2113		

٠	213> Artificial Sequence	
	220>	
٠	223> siRNA	
	221> misc_feature	
	222> (20)(21)	
	223> N = deoxythymidine	
	400> 31	
	gcgaucuua uugaaguggn n	21
	210> 32	
	211> 21	
	212> RNA	
	213> Artificial Sequence	
	220>	
	223> siRNA	
	221> misc_feature	
	222> (20)(21)	
	223> N = deoxythymidine	
	400> 32	
	cacuucaau aagaucgccn-n	21
	210> 33	
	211> 21	
	212> RNA	
	213> Artificial Sequence	
	220>	
	223> siRNA	
	221> misc_feature	
	222> (20)(21)	
	223> N = deoxythymidine	
	400> 33	
	aagcaaugg uccaagaugn n	21
	210> 34	
	211> 21	
	2212> RNA	
	213> Artificial Sequence	
	220>	
	223> siRNA	
	221> misc_feature	
	(222> (20)(21)	
	223> N = deoxythymidine	
	2400> 34	
	anguagae caungguich h	21

```
<210> 35
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 35
auacccaaca auugcagcgn n
                                                                    21
<210> 36
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 36
                                                                     21
cgcugcaauu guuggguaun n
<210> 37
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 37
                                                                     21
cagaucgaac acacccugan n
<210> 38
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
```

<400> 38 ucagggugug uucgaucugn n	21
<210> 39 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<pre><221> misc_feature <222> (20)(21) <223> N = deoxythymidine</pre>	
<400> 39 gaagggcagc gagcaggagn n	21
<210> 40 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<pre><221> misc_feature <222> (20)(21) <223> N = deoxythymidine</pre>	
<400> 40 cuccugcucg cugeccuucn n	21
<210> 41 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N = deoxythymidine	
<400> 41 gggcagcgag caggagagcn n	21
<210> 42 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc feature	

```
<222> (20)...(21)
<223> N = deoxythymidine
<400> 42
                                                                    21
gcucuccugc ucgcugcccn n
<210> 43
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 43
                                                                    21
ccuuccuuuc ggaguaaucn n
<210> 44
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 44
                                                                     21
gauuacuccg aaaggaaggn n
<210> 45
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20) ... (21)
<223> N = deoxythymidine
<400> 45
                                                                     21
cgauacaugg ccccugaagn n
<210> 46
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
```

<223> siRNA	
<221> misc_feature <222> (20)(21) <223> N = deoxythymidine	
<400> 46 gacgugaaga ucuaacugen n	21
<210> 47 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N = deoxythymidine	
<400> 47 gaugaugcga gaguguuggn n	21
<210> 48 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N = deoxythymidine	·
<400> 48 cugcuccuc ucuccacacn n	21
<210> 49 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N = deoxythymidine	
<400> 49 cuucaggggc cauguaucgn n	21
<210> 50 <211> 21	

<213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N = deoxythymidine	
<400> 50 gcaguuagau cuucacgucn n	21
<210> 51 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N = deoxythymidine	
<400> 51 ccaacacucu cgcaucaucn n	21
<210> 52 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<pre><221> misc_feature <222> (20)(21) <223> N = deoxythymidine</pre>	
<400> 52 guguggagag agggagcagn n	21
<210> 53 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N = deoxythymidine	
<400> 53 cqccaaqqac aagaaccugn n	21

```
<210> 54
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 54
                                                                     21
cagguucuug uccuuggcgn n
<210> 55
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 55
                                                                     21
ugagaaccug aagaagucgn n
<210> 56
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 56
                                                                     21
cgacuucuuc agguucucan n
<210> 57
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
```

<400> gaaga	acucc aagaaggugn n		21	
<210><211><211><212><213>	21			
<220>				
<222>	misc_feature (20)(21) N = deoxythymidine			
<400>	58 ucuug gaguucuucn n		2:	L
<210><211><211><212><213>	· 21			
<220> <223>	siRNA			
<222	<pre>misc_feature (20)(21) N = deoxythymidine</pre>			
<4002 cagca	> 59 agcuac cagaacaacn n		2	1
<220 <223	> > siRNA			
<222	<pre>> misc_feature > (20)(21) > N = deoxythymidine</pre>			
<400: guugi	> 60 uucugg uagcugcugn n		2	1
<220 <223	> > siRNA			
<221	> misc_feature			

```
<222> (20)...(21)
\langle 223 \rangle N = deoxythymidine
<400> 61
                                                                      21
gcgaaggacc ucauccagan n
<210> 62
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 62
                                                                      21
ucuggaugag guccuucgcn n
<210> 63
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 63
                                                                      21
gcuuacgaga ggaggauucn n
<210> 64
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc feature
<222> (20) ... (21)
<223> N = deoxythymidine
<400> 64
                                                                      21
gaauccuccu cucguaagcn n
<210> 65
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
```

	siRNA	
<222>	misc_feature (20)(21) N = deoxythymidine	
<400>	65	21
<210><211><211><212> <212> <	21	
<220> <223>	siRNA	
<222>	<pre>misc_feature (20)(21) N = deoxythymidine</pre>	
<400> gcugau		21
<210> <211> <212> <213>	21	•
<220>		
<223>	SIRNA	
<221> <222>	misc_feature (20)(21) N = deoxythymidine	
<221> <222> <223> <400>	<pre>misc_feature (20)(21) N = deoxythymidine</pre>	21
<221><222><223><400>cuucga<<210><211><212>	misc_feature (20)(21) N = deoxythymidine 67 acgug gaugacgacn n 68 21	21
<221><222><223><400>cuucga<<210><211><212>	misc_feature (20)(21) N = deoxythymidine 67 ecgug gaugacgacn n 68 21 RNA Artificial Sequence	21
<221> <222> <223> <400> cuucga <210> <211> <212> <213> <222> <223>	misc_feature (20)(21) N = deoxythymidine 67 ecgug gaugacgacn n 68 21 RNA Artificial Sequence	21
<221> <222> <223> <400> cuucga <210> <211> <212> <213> <220> <223> <400> <400>	misc_feature (20)(21) N = deoxythymidine 67 degug gaugacgaen n 68 21 RNA Artificial Sequence siRNA misc_feature (20)(21) N = deoxythymidine	21

<213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N = deoxythymidine	
<400> 69 ggcucaugag aggcuagaan n	21
<210> 70 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N = deoxythymidine	
<400> 70 uucuageeue ucaugageen n	21
<210> 71 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N = deoxythymidine	
<400> 71 guuuguguca cgaucugagn n	21
<210> 72 <211> 21 <212> RNA <213> Artificial Sequence	
<220> <223> siRNA	
<221> misc_feature <222> (20)(21) <223> N = deoxythymidine	
<400> 72	23

```
<210> 73
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 73
                                                                    21
gaugaaaaag auggccaggn n
<210> 74
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 74
                                                                     21
ccuggccauc uuuuucaucn n
<210> 75
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc feature
<222> (20)...(21)
<223> N = deoxythymidine
<400> 75
                                                                     21
auguggcaga auugguuggn n
<210> 76
<211> 21
<212> RNA
<213> Artificial Sequence
<220>
<223> siRNA
<221> misc_feature
<222> (20)...(21)
<223> N = deoxythymidine
```

<400> 76 ccaaccaauu cugccacaun n	21
<210> 77 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 77 cccatctttc ctcttggctt	20
<210> 78 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 78 ctgttctgag gtaattcgct	20
<210> 79 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 79 gcatgagaca gaaacacctt	20
<210> 80 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 80 gagatcccag ttccttctat	20
<210> 81 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 81 aactggagga acccttgttt	20

<210> 82 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 82 ctatagctga tgcgagactt	20
<210> 83 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 83 cacctctcgt tcaagtaact	20
<210> 84 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 84 tcagaatgtt cacctctcgt	20
<210> 85 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 85 tcaccagctg aaggatgttt	20
<210> 86 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 86 ccacttcaat aagatcgcct	20
<210> 87	

<211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 87 catcttggac cattgcttct	20
<210> 88 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 88 cgctgcaatt gttgggtatt	20
<210> 89 <211> 19 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 89 tcagggtgtg ttcgatctg	19
<210> 90 <211> 19 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 90 ctcctgctcg ctgcccttc	19
<210> 91 <211> 19 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 91 geteteetge tegetgeee	19
<210> 92 <211> 19 <212> DNA	

<213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 92 gattactccg aaaggaagg	19
<210> 93 <211> 19 <212> DNA	
<213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 93 cttcaggggc catgtatcg	19
<210> 94 <211> 19 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 94 gcagttagat cttcacgtc	19
<210> 95 <211> 19 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 95 ccaacactct cgcatcatc	19
<210> 96 <211> 19 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 96 gtgtggagag agggagcag	19
<210> 97 <211> 19 <212> DNA <213> Artificial Sequence	

<220> <223> antisense oligonucleotide	
<400> 97 caggttcttg tccttggcg	19
<210> 98 <211> 19 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 98 cgacttcttc aggttctca	19
<210> 99 <211> 19 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 99 caccttcttg gagttcttc	19
<210> 100 <211> 19 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 100 gttgttctgg tagctgctg	19
<210> 101 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 101 tctggatgag gtccttcgct	20
<210> 102 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	

	400> 102 maatceteet etegtaaget	20
<	2210> 103 2211> 20 2212> DNA 2213> Artificial Sequence	
	<pre>220> 223> antisense oligonucleotide</pre>	
	c400> 103 gctgatgggc atctttgagt	20
<	<pre><210> 104 <211> 20 <212> DNA <213> Artificial Sequence</pre>	
	<220> <223> antisense oligonucleotide	
	<400> 104 gtcgtcatcc acgtcgaagt	20
•	<210> 105 <211> 20 <212> DNA <213> Artificial Sequence	
	<220> <223> antisense oligonucleotide	
	<400> 105 ttctagcctc tcatgagcct	20
•	<210> 106 <211> 20 <212> DNA <213> Artificial Sequence	
	<220> <223> antisense oligonucleotide	
	<400> 106 ctcagatcgt gacacaaact	20
	<210> 107 <211> 20 <212> DNA <213> Artificial Sequence	
	<220> <223> antisense oligonucleotide	
	<400> 107	

cctggccatc tttttcatct	20
<210> 108 <211> 20 <212> DNA	
<213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 108 ccaaccaatt ctgccacatt	20
<210> 109 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 109 agctcctcga ccaatcacct	20
<210> 110 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 110 ggggcatcgt ttcagaattt	20
<210> 111 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 111 cactttgacc aagtcgatgt	20
<210> 112 <211> 20 <212> DNA <213> Artificial Sequence	
<220> <223> antisense oligonucleotide	
<400> 112 caagttcact cgtcagcttt	20

```
<210> 113
<211> 1772
<212> DNA
<213> Homo sapiens
<400> 113
gggctccggc ctcagaggct gtgacaatgg actatgactt taaagtgaag ctgagcagcg 60
agcgggagcg ggtcgaggac ctgtttgaat acgagggctg caaagttggc cgaggcactt 120
atggtcacgt ctacaaagcc aagaggaaag atgggaagga tgataaagac tatgctttaa 180
aacaaataga aggaactggg atctctatgt cggcatgtag agaaatagca ttacttcgag 240
agettaagea tecaaaegte atttetette aaaaggtgtt tetgteteat getgatagga 300
aggtgtggct tctgtttgac tatgctgaac atgacctctg gcatataatc aagtttcaca 360
gagcttctaa agcaaacaag aagccagttc agttacctcg gggaatggtg aagtcactat 420
tatatcagat cctagatggt attcactacc tgcatgctaa ctgggtgttg cacagagatt 480
tgaaacctgc taatatttta gttatgggtg aaggtcctga gcgaggaaga gtaaaaattg 540
ctgacatggg ctttgcccga ttatttaatt cacctttgaa gcctttagca gatttggatc 600
cagtggttgt tacattctgg taccgagccc ctgaactact tcttggagca aggcattata 660
ccaaaqctat tgatatttgg gctatagggt gtatatttgc agaactacta acgtcagaac 720
caatatttca ctgtcgacaa gaggacatca aaactagtaa tccttatcac catgaccagc 780
tggacagaat attcaatgta atgggatttc ctgcagataa agattgggaa gatataaaaa 840
agatgcctga acattcaaca ttaatgaaag atttcagaag aaatacgtat accaactgca 900
gccttatcaa gtatatggaa aaacataaag ttaaaccaga tagtaaagca ttccacttgc 960
ttcagaagct gcttaccatg gacccaataa agcgaattac ctcagaacag gctatgcagg 1020
acccctattt cttagaagac ccacttccta catcagacgt ttttgccggt tgtcaaatcc 1080
cttacccaaa acqaqaattt ttaacqqaag aagaacctga tgacaaaagga gacaaaaaga 1140
accagcagca gcagcagggc aataaccaca ctaatggaac tggccaccca gggaatcaag 1200
acagcagtca cacacaggga cccccgttga agaaagtgag agttgttcct cctaccacta 1260
cctcaggtgg acttatcatg acctcagact atcagcgttc caatccacat gctgcctatc 1320
ccaaccetgg accaagcaca tcacagcege agagcagcat gggatactca gctacctece 1380
agcageetee acagtactea cateagacae ateggtactg agetgeateg gaatettgte 1440
catgcactgt tgcgaatgct gcagggctga ctgtgcagct ctctgcggga acctggtatg 1500
ggccatgaga atgtactgta caaccacatc ttcaaaatgt ccagtagcca agttccacca 1560
cttttcacag attggggtag tggcttccaa gttgtaccta ttttggagtt agacttgaaa 1620
agaaagtgct agcacagttt gtgttgtgga tttgctactt ccatagttta cttgacatgg 1680
ttcagactga ccaatgcatt tttttcagtg acagtctgta gcagttgaag ctgtgaatgt 1740
                                                                   1772
gctaggggca agcatttgtc tttgtatgtg gt
<210> 114
<211> 3064
<212> DNA
<213> Homo sapiens
<400> 114
atgtactccc aattacttct ggaagtttct caaagtactc ctttatatat actgcagagt 60
gtatttttct tcctcctcaa ctgagatctt tccaacttgc caccatgcag ctgccaatgg 120
tectagttaa gtaaaatget gecataeeta ttttagaete agggaaaaat ageaeeeaet 180
catttttatt tttgctcaat ataaaaatga ggatacttat gaggatactt aaacttttag 240
qattaqctaq ttttctaaaa atcgaattat tcactccttt gtaaagtatg taataggaat 300
ttgctctaat aatcaataga ttaaggttta aaatttgaaa ccatagtaat gtatgtttaa 360
caccaatatt ttaagccttt ttaaaaacca caacccacat taagaaatac atttcatact 420
qtqatcaaqt acacacqcac acacacctc tatacatata tgtctgtcca attaaaagtt 480
tcacagaaat ttccaaggag gtatgctaaa tattatctct ttgattctac tttattttta 540
aaaagtggta tcaacccaca aaatggattt cataacccac tacgcagttt gataagatgc 600
tgttttagac catgcttttc accagttttg tggtcctatt ttgtcctttt catgtctata 660
caggatgctt ctagtgctag ttgctagctt ttctctgatt tccaggatgg taataggtta 720
agaatttctc taaatggtta tttcttttct ttctgcagct ctcacgtgtg aatatgtgtc 780
tagtqcatcc ttaacctgag gacttcacca gttcgaaatt acagttttca ccatcaacta 840
```

ccttatcctt tttggcctgg ttttcttcct caaacagtgg aaacattttt aaagttgctt 900

```
ttqttqcaga qttaaacaaa tggctgatag tggcttagat aaaaaatcca caaaatgccc 960
cgactgttca tctgcttctc agaaagatgt actttgtgta tgttccagca aaacaagggt 1020
tectecagtt ttggtggtgg aaatgteaea gacateaage attggtagtg cagaatettt 1080
aatttcactg gagagaaaaa aagaaaaaaa tatcaacaga gatataacct ccaggaaaga 1140
tttgccctca agaacctcaa atgtagagag aaaagcatct cagcaacaat ggggtcgggg 1200
caactttaca gaaggaaaag ttcctcacat aaggattgag aatggagctg ctattgagga 1260
aatctatacc tttggaagaa tattgggaaa agggagcttt ggaatagtca ttgaagctac 1320
agacaaggaa acagaaacga agtgggcaat taaaaaagtg aacaaagaaa aggctggaag 1380
ctctgctgtg aagttacttg aacgagaggt gaacattctg aaaagtgtaa aacatgaaca 1440
catcatacat ctggaacaag tatttgaaac gccaaagaaa atgtaccttg tgatggagct 1500
ttgtgaggat ggagaactca aagaaattct ggataggaaa gggcatttct cagagaatga 1560
gacaaggtgg atcattcaaa gtctcgcatc agctatagca tatcttcaca ataatgatat 1620
tqtacataga qatctqaaac tggaaaatat aatggttaaa agcagtctta ttgatgataa 1680
caatqaaata aacttaaaca taaaqqtqac tqattttqqc ttaqcqqtqa aqaaqcaaaq 1740
taggagtgaa gccatgctgc aggccacatg tgggactcct atctatatgg cccctgaagt 1800
tatcagtgcc cacgactata gccagcagtg tgacatttgg agcataggcg tcgtaatgta 1860
catqttatta cqtqqaqaac cacccttttt qqcaaqctca qaaqaqaaqc tttttqaqtt 1920
aataaqaaaa qqaqaactac attttqaaaa tqcaqtctqq aattccataa qtqactqtqc 1980
taaaaqtqtt ttqaaacaac ttatqaaaqt aqatcctqct cacaqaatca caqctaaqqa 2040
actactagat aaccagtggt taacaggcaa taaactttct tcggtgagac caaccaatgt 2100
attagagatg atgaaggaat ggaaaaataa cccagaaagt gttgaggaaa acacaacaga 2160
agagaagaat aagccgtcca ctgaagaaaa gttgaaaagt taccaaccct ggggaaatgt 2220
ccctgatgcc aattacactt cagatgaaga ggaggaaaaa cagtctactg cttatgaaaa 2280
gcaatttcct gcaaccagta aggacaactt tgatatgtgc agttcaagtt tcacatctag 2340
caaactcctt ccagctgaaa tcaagggaga aatggagaaa acccctgtga ctccaagcca 2400
aggaacagca accaagtacc ctgctaaatc cggcgccctg tccagaacca aaaagaaact 2460
ctaaggttcc ctccagtgtt ggacagtaca aaaacaaagc tgctcttgtt agcactttga 2520
tgagggggta ggaggggaag aagacagccc tatgctgagc ttgtagcctt ttagctccac 2580
agagecege catgtgtttg caecagetta aaattgaage tgettatete caaageagea 2640
taagctgcac atggcattaa aggacagcca ccagtaggct tggcagtggg ctgcagtgga 2700
aatcaactca agatgtacac gaaggttttt taggggggca gataccttca atttaaggct 2760
qtqqqcacac ttqctcattt ttacttcaaa ttcttatqtt taqqcacaqc tatttataqq 2820
ggaaaacaag aggccaaata tagtaatgga ggtgccaaat aattatgtgc actttgcact 2880
agaagacttt gttagaaaat tactaataaa cttgccatac gtattacagc agaagtgctt 2940
cagtcattca catgtgttcg tgagatttta ggttgctata gattgtttaa gacagcttat 3000
tttaaatgta qaaaaatagg agattttgta actgcttgcc attaacttgc tgctaaattc 3060
ccaa
                                                                  3064
<210> 115
<211> 3742
<212> DNA
<213> Homo sapiens
<400> 115
gaatteette teteeteete etegeeette teetegeeet eeteeteete etegeeetee 60
cctcccgatc ctcatcccct tgccctcccc cagcccaggg acttttccgg aaagttttta 120
ttttccgtct gggctctcgg agaaagaagc tcctggctca gcggctgcaa aactttcctg 180
ctgccgcgcc gccagcccc gccctccgct gcccggccct gcgccccgcc gagcgatgag 240
egececteeg gteetgegge egeceagtee getgetgeee gtggeggegg eagetgeege 300
ageggeegee geaetggtee eagggteegg geeegggeee gegeegttet tggeteetgt 360
egeggeeeeg gtegggggea tetegtteea tetgeagate ggeetgagee gtgageeggt 420
gctqctqctq caqqactcqt ccqqqqacta caqcctqqcq cacqtccqcq agatqqcttq 480
ctccattqtc qaccaqaaqt tccctqaatq tqqtttctac qqaatqtatq ataaqatcct 540
gctttttcgc catgacccta cctctgaaaa catccttcag ctggtgaaag cggccagtga 600
tatccaggaa qqcqatctta ttqaaqtggt cttqtcacgt tccgccacct ttgaaqactt 660
tcagattcgt ccccacgctc tctttgttca ttcatacaga gctccagctt tctgtgatca 720
```

```
ctqtqqaqaa atgctgtggg ggctggtacg tcaaggtctt aaatgtgaag ggtgtggtct 780
gaattaccat aagagatgtg catttaaaat acccaacaat tgcagcggtg tgaggcggag 840
aaggetetea aaegttteee teaetggggt cageaceate egeacateat etgetgaaet 900
ctctacaagt gcccctgatg agccccttct gcaaaaatca ccatcagagt cgtttattgg 960
tcqaqaqaaq aqqtcaaatt ctcaatcata cattggacga ccaattcacc ttgacaagat 1020
tttgatgtct aaagttaaag tgccgcacac atttgtcatc cactcctaca cccggcccac 1080
aqtqtqccaq tactgcaaqa aqcttctqaa ggggcttttc aggcagggct tgcagtgcaa 1140
agattgcaga ttcaactgcc ataaacgttg tgcaccgaaa gtaccaaaca actgccttgg 1200
cgaagtgacc attaatggag atttgcttag ccctggggca gagtctgatg tggtcatgga 1260
aqaaqqqaqt qatqacaatq ataqtqaaaq gaacaqtggg ctcatggatg atatggaaga 1320
agcaatggtc caagatgcag agatggcaat ggcagagtgc cagaacgaca gtggcgagat 1380
qcaagatcca gacccagacc acgaggacgc caacagaacc atcagtccat caacaagcaa 1440
caatatccca ctcatgaggg tagtgcagtc tgtcaaacac acgaagagga aaagcagcac 1500
agtcatgaaa gaaggatgga tggtccacta caccagcaag gacacgctgc ggaaacggca 1560
ctattggaga ttggatagca aatgtattac cctctttcag aatgacacag gaagcaggta 1620
ctacaaggaa atteetttat etgaaatttt gtetetggaa eeagtaaaaa etteagettt 1680
aattectaat ggggeeaate eteattgttt egaaateact aeggeaaatg tagtgtatta 1740
tgtgggagaa aatgtggtca atccttccag cccatcacca aataacagtg ttctcaccag 1800
tggcgttggt gcagatgtgg ccaggatgtg ggagatagcc atccagcatg cccttatgcc 1860
cgtcattccc aagggctcct ccgtgggtac aggaaccaac ttgcacagag atatctctgt 1920
gagtatttca gtatcaaatt gccagattca agaaaatgtg gacatcagca cagtatatca 1980
gatttttcct gatgaagtac tgggttctgg acagtttgga attgtttatg gaggaaaaca 2040
tcgtaaaaca ggaagagatg tagctattaa aatcattgac aaattacgat ttccaacaaa 2100
acaagaaagc cagcttcgta atgaggttgc aattctacag aaccttcatc accctggtgt 2160
tgtaaatttg gagtgtatgt ttgagacgcc tgaaagagtg tttgttgtta tggaaaaact 2220
ccatggagac atgctggaaa tgatcttgtc aagtgaaaag ggcaggttgc cagagcacat 2280
aacgaagttt ttaattactc agatactcgt ggctttgcgg caccttcatt ttaaaaaatat 2340
cgttcactgt gacctcaaac cagaaaatgt gttgctagcc tcagctgatc cttttcctca 2400
ggtgaaactt tgtgattttg gttttgcccg gatcattgga gagaagtctt tccggaggtc 2460
agtggtgggt acccccgctt acctggctcc tgaggtccta aggaacaagg gctacaatcg 2520
ctctctagac atgtggtctg ttggggtcat catctatgta agcctaagcg gcacattccc 2580
atttaatgaa gatgaagaca tacacgacca aattcagaat gcagctttca tgtatccacc 2640
aaatccctgg aaggaaatat ctcatgaagc cattgatctt atcaacaatt tgctgcaagt 2700
aaaaatgaga aagcgctaca gtgtggataa gaccttgagc cacccttggc tacaggacta 2760
tcagacctgg ttagatttgc gagagctgga atgcaaaatc ggggagcgct acatcaccca 2820
tgaaagtgat gacctgaggt gggagaagta tgcaggcgag cagcggctgc agtaccccac 2880
acacctgatc aatccaagtg ctagccacag tgacactcct gagactgaag aaacagaaat 2940
qaaaqccctc qqtqaqcqtq tcaqcatcct ctgagttcca tctcctataa tctgtcaaaa 3000
cactqtqqaa ctaataaata catacqqtca qqtttaacat ttgccttgca gaactgccat 3060
tattttctqt cagatqaqaa caaaqctqtt aaactqttaq cactqttqat qtatctqaqt 3120
tgccaagaca aatcaacaga agcatttgta ttttgtgtga ccaactgtgt tgtattaaca 3180
aaaqttccct qaaacacqaa acttgttatt gtgaatgatt catgttatat ttaatgcatt 3240
aaacctqtct ccactqtqcc tttqcaaatc aqtqtttttc ttactqqaqc ttcattttqq 3300
taagagacag aatgtatctg tgaagtagtt ctgtttggtg tgtcccattg gtgttgtcat 3360
tgtaaacaaa ctcttgaaga gtcgattatt tccagtgttc tatgaacaac tccaaaaccc 3420
atgtgggaaa aaaatgaatg aggagggtag ggaataaaat cctaagacac aaatgcatga 3480
acaagtttta atgtatagtt ttgaatcctt tgcctgcctg gtgtgcctca gtatatttaa 3540
acteaagaca atgeaectag etgtgeaaga eetagtgete ttaageetaa atgeettaga 3600
aatgtaaact gccatatata acagatacat ttccctcttt cttataatac tctgttgtac 3660
tatggaaaat cagctgctca gcaacctttc acctttgtgt atttttcaat aataaaaaat 3720
attcttgtca aaaaaaaaaa aa
                                                                  3742
```

<210> 116

<211> 2549

<212> DNA

<213> Homo sapiens

```
<220>
<221> misc feature
<222> (6)...(6)
<223> N is a, t, g, c, unknown, or other
<400> 116
cagtgngctc cgggccgccg gccgcagcca gcacccgccg cgccgcagct ccgggaccgg 60
ccccggccgc cgccgccgcg atgggcaacg ccgccgccgc caagaagggc agcgagcagg 120
agagcgtgaa agaattctta gccaaagcca aagaagattt tcttaaaaaa tgggaaagtc 180
ccgctcagaa cacagcccac ttggatcagt ttgaacgaat caagaccctc ggcacgggct 240
ccttcgggcg ggtgatgctg gtgaaacaca aggagaccgg gaaccactat gccatgaaga 300
tectegacaa acagaaggtg gtgaaactga aacagatega acacaceetg aatgaaaage 360
gcatcctgca agctgtcaac tttccgttcc tcgtcaaact cgagttctcc ttcaaggaca 420
actcaaactt atacatggtc atggagtacg tgcccggcgg ggagatgttc tcacacctac 480
ggcggatcgg aaggttcagt gagccccatg cccgtttcta cgcggcccag atcgtcctga 540
cctttgagta tctgcactcg ctggatctca tctacaggga cctgaagccg gagaatctgc 600
tcattgacca gcagggctac attcaggtga cagacttcgg tttcgccaag cgcgtgaagg 660
geogeacttg gacettgtge ggeacecetg agtacetgge eeetgagatt ateetgagea 720
aaggctacaa caaggccgtg gactggtggg ccctgggggt tcttatctat gaaatggccg 780
ctggctaccc gcccttcttc gcagaccagc ccatccagat ctatgagaag atcgtctctg 840
ggaaggtgcg cttcccttcc cacttcagct ctgacttgaa ggacctgctg cggaacctcc 900
tgcaggtaga tctcaccaag cgctttggga acctcaagaa tggggtcaac gatatcaaga 960
accacaagtg gtttgccaca actgactgga ttgccatcta ccagaggaag gtggaagctc 1020
ccttcatacc aaagtttaaa ggccctgggg atacgagtaa ctttgacgac tatgaggaag 1080
aagaaatccg ggtctccatc aatgagaagt gtggcaagga gttttctgag ttttaggggc 1140
atgcctgtgc ccccatgggt tttcttttt ctttttctt ttttttggtc gggggggtgg 1200
gagggttgga ttgaacagcc agagggcccc agagttcctt gcatctaatt tcaccccac 1260
cccacctcc agggttaggg ggagcaggaa gcccagataa tcagagggac agaaacacca 1320
gctgctcccc ctcatcccct tcaccctcct gccccctctc ccacttttcc cttcctcttt 1380
ccccacagcc ccccagcccc tcagccctcc cagcccactt ctgcctgttt taaacgagtt 1440
tctcaactcc agtcagacca ggtcttgctg gtgtatccag ggacagggta tggaaagagg 1500
ggctcacgct taactccagc ccccacccac acccccatcc cacccaacca caggccccac 1560
ttgctaaggg caaatgaacg aagcgccaac cttcctttcg gagtaatcct gcctgggaag 1620
gagagatttt tagtgacatg ttcagtgggt tgcttgctag aattttttta aaaaaacaac 1680
aatttaaaat cttatttaag ttccaccagt gcctccctcc ctccttcctc tactcccacc 1740
cctcccatgt ccccccattc ctcaaatcca ttttaaagag aagcagactg actttggaaa 1800
gggaggcgct ggggtttgaa cctccccgct gctaatctcc cctgggcccc tccccgggga 1860
atcctctctg ccaatcctgc gagggtctag gcccctttag gaagcctccg ctctctttt 1920
ccccaacaga cctgtcttca cccttgggct ttgaaagcca gacaaagcag ctgccctct 1980
ccctgccaaa gaggagtcat cccccaaaaa gacagagggg gagccccaag cccaagtctt 2040
tecteccage agegtttece eccaacteet taattttatt eteegetaga ttttaaegte 2100
cagcettece teagetgagt ggggagggea teeetgeaaa agggaacaga agaggeeaag 2160
tecececaag ceaeggeeeg gggtteaagg etagagetge tggggagggg etgeetgttt 2220
tactcaccca ccagcttccg cctcccccat cctgggcgcc cctcctccag cttagctgtc 2280
agctgtccat cacctctccc ccactttctc atttgtgctt ttttctctcg taatagaaaa 2340
gtggggagcc gctggggagc caccccattc atccccgtat ttccccctct cataacttct 2400
ccccatccca ggaggagttc tcaggcctgg ggtggggccc cgggtgggtg cggggggat 2460
tcaacctgtg tgctgcgaag gacgagactt cctcttgaac agtgtgctgt tgtaaacata 2520
                                                                   2549
tttgaaaact attaccaata aagtttgtt
<210> 117
<211> 2372
<212> DNA
<213> Homo sapiens
<400> 117
cgctgctggg ctgcggcggc ggcggcggcg gtggttacta tggcggagtc ggccggagcc 60
```

```
tectecttet tecceettgt tgteeteetg etegeeggea geggegggte egggeeeegg 120
qqqqtccagg ctctgctgtg tgcgtgcacc agctgcctcc aggccaacta cacgtgtgag 180
acagatgggg cctgcatggt ttccattttc aatctggatg ggatggagca ccatgtgcgc 240
acctgcatcc ccaaagtgga gctggtccct gccgggaagc ccttctactg cctgagctcg 300
gaggacctgc gcaacaccca ctgctgctac actgactact gcaacaggat cgacttgagg 360
gtgcccagtg gtcacctcaa ggagcctgag cacccgtcca tgtggggccc ggtggagctg 420
gtaggcatca tcgccggccc ggtgttcctc ctgttcctca tcatcatcat tgttttcctt 480
gtcattaact atcatcagcg tgtctatcac aaccgccaga gactggacat ggaagatccc 540
tcatgtgaga tgtgtctctc caaagacaag acgctccagg atcttgtcta cgatctctcc 600
acctcagggt ctggctcagg gttacccctc tttgtccagc gcacagtggc ccgaaccatc 660
gttttacaag agattattgg caagggtcgg tttggggaag tatggcgggg ccgctggagg 720
ggtggtgatg tggctgtgaa aatattctct tctcgtgaag aacggtcttg gttcagggaa 780
gcagagatat accagacggt catgctgcgc catgaaaaca tccttggatt tattgctgct 840
gacaataaag ataatggcac ctggacacag ctgtggcttg tttctgacta tcatgagcac 900
gggtccctgt ttgattatct gaaccggtac acagtgacaa ttgaggggat gattaagctg 960
gccttgtctg ctgctagtgg gctggcacac ctgcacatgg agatcgtggg cacccaaggg 1020
aagcctggaa ttgctcatcg agacttaaag tcaaagaaca ttctggtgaa gaaaaatggc 1080
atgtgtgcca tagcagacct gggcctggct gtccgtcatg atgcagtcac tgacaccatt 1140
gacattgccc cgaatcagag ggtggggacc aaacgataca tggcccctga agtacttgat 1200
gaaaccatta atatgaaaca ctttgactcc tttaaatgtg ctgatattta tgccctcggg 1260
cttgtatatt gggagattgc tcgaagatgc aattctggag gagtccatga agaatatcag 1320
ctgccatatt acgacttagt gccctctgac ccttccattg aggaaatgcg aaaggttgta 1380
tgtgatcaga agctgcgtcc caacatcccc aactggtggc agagttatga ggcactgcgg 1440
gtgatgggga agatgatgcg agagtgttgg tatgccaacg gcgcagcccg cctgacggcc 1500
ctgcgcatca agaagaccct ctcccagctc agcgtgcagg aagacgtgaa gatctaactg 1560
ctccctctct ccacacggag ctcctggcag cgagaactac gcacagctgc cgcgttgagc 1620
gtacgatgga ggcctacctc tcgtttctgc ccagccctct gtggccagga gccctggccc 1680
gcaagaggga cagagcccgg gagagactcg ctcactccca tgttgggttt gagacagaca 1740
ccttttctat ttacctccta atggcatgga gactctgaga gcgaattgtg tggagaactc 1800
agtgccacac ctcgaactgg ttgtagtggg aagtcccgcg aaacccggtg catctggcac 1860
gtggccagga gccatgacag gggcgcttgg gaggggccgg aggaaccgag gtgttgccag 1920
tgctaagctg ccctgagggt ttccttcggg gaccagccca cagcacacca aggtggcccg 1980
gaagaaccag aagtgcagcc cctctcacag gcagctctga gccgcgcttt cccctcctcc 2040
ctgggatgga cgctgccggg agactgccag tggagacgga atctgccgct ttgtctgtcc 2100
ageogtgtgt geatgtgeeg aggtgegtee eeegttgtge etggttegtg ceatgeeett 2160
acacqtqcqt qtqaqtqtgt gtgtgtqtct gtaggtqcgc acttacctqc ttgagctttc 2220
tgtgcatgtg caggtcgggg gtgtggtcgt catgctgtcc gtgcttgctg gtgcctcttt 2280
teagtagtga geageateta gttteeetgg tgeeetteee tggaggtete teeeteeee 2340
                                                                  2372
agagececte atgecaeagt ggtactetgt gt
<210> 118
<211> 1097
<212> DNA
<213> Homo sapiens
<400> 118
aaactcagaa ttttcgcggg ctcggtgagc ggttttatcc ctccggccgg caggctgggc 60
gcagggggcg agcccccgcc cggcgcgcag cagcaccatg ggcacggtgc tgtccctgtc 120
teccagetae eggaaggeea egetgtttga ggatggegeg gecaeegtgg gecaetatae 180
ggccgtacag aacagcaaga acgccaagga caagaacctg aagcgccact ccatcatctc 240
cgtgctgcct tggaagagaa tcgtggccgt gtcggccaag aagaagaact ccaagaaggt 300
gcagcctaac agcagctacc agaacaacat cacgcacctc aacaatgaga acctgaagaa 360
gtcgctgtcg tgcgccaacc tgtccacatt cgcccagccc ccaccggccc agccgcctgc 420
acceceggee agecagetet egggtteeca gaceggggge teeteeteag teaagaaage 480
ccctcaccct gccgtcacct ccgcagggac gcccaaacgg gtcatcgtcc aggcgtccac 540
caqtqaqctq cttcqctqcc tqqqtqaqtt tctctqccqc cqqtqctacc gcctgaagca 600
```

cctgtccccc acggaccccg tgctctggct gcgcagcgtg gaccgctcgc tgcttctgca 660

```
gggctggcag gaccagggct tcatcacgcc ggccaacgtg gtcttcctct acatgctctg 720
cagggatgtt atctcctccg aggtgggctc ggatcacgag ctccaggccg tcctgctgac 780
atgcctgtac ctctcctact cctacatggg caacgagatc tcctacccgc tcaagccctt 840
cctggtggag agctgcaagg aggccttttg ggaccgttgc ctctctgtca tcaacctcat 900
qaqctcaaaq atgctgcaga taaatgccga cccacactac ttcacacagg tcttctccga 960
cctgaagaac gagagcgcc aggaggacaa gaagcggctc ctcctaggcc tggatcggtg 1020
agcactgtag cctgcgtcat ggctcaagga ttcaatgcat ttttaagaat ttattattaa 1080
atcagttttg tgtacag
                                                                  1097
<210> 119
<211> 6782
<212> DNA
<213> Homo sapiens
<400> 119
gggcggggct gagggcggcg ggggcgggcc gcccgagctg ggagggcggc ggcgccgagg 60
ggaggagage ggcccatgga cccgcggggc ccggcgccc agactctgcg ccgtcgggac 120
ggagcccaag atgtcggcct aggccggggc gcgacgacgc ggacggggcg gcgaggaggc 180
geogetgetg ceggggeteg cageegeega geoecegagg gegegeeetg aeggaetgge 240
cgagccggcg gtgagaggcc ggcgcgtcgg gagcgggccg cgcggcacca tgtcggccaa 300
ggtgcggctc aagaagctgg agcagctgct cctggacggg ccctggcgca acgagagcgc 360
cctgagcgtg gaaacgctgc tcgacgtgct cgtctgcctg tacaccgagt gcagccactc 420
ggccctgcgc cgcgacaagt acgtggccga gttcctcgag tgggctaaac catttacaca 480
gctggtgaaa gaaatgcagc ttcatcgaga agactttgaa ataattaaag taattggaag 540
aggtgctttt ggtgaggttg ctgttgtcaa aatgaagaat actgaacgaa tttatgcaat 600
gaaaatcctc aacaagtggg agatgctgaa aagagcagag accgcgtgct tccgagagga 660
gcgcgatgtg ctggtgaacg gcgactgcca gtggatcacc gcgctgcact acgcctttca 720
ggacgagaac cacctgtact tagtcatgga ttactatgtg ggtggtgatt tactgaccct 780
gctcagcaaa tttgaagaca agcttccgga agatatggcg aggttctaca ttggtgaaat 840
ggtgctggcc attgactcca tccatcagct tcattacgtg cacagagaca ttaaacctga 900
caatgtcctt ttggacgtga atggtcatat ccgcctggct gactttggat catgtttgaa 960
gatgaatgat gatggcactg tgcagtcctc cgtggccgtg ggcacacctg actacatctc 1020
gccggagatc ctgcaggcga tggaggacgg catgggcaaa tacgggcctg agtgtgactg 1080
gtggtctctg ggtgtctgca tgtatgagat gctctatgga gaaacgccgt tttatgcgga 1140
gtcactcgtg gagacctatg ggaagatcat gaaccatgaa gagcgattcc agttcccatc 1200
ccatgtcacg gatgtatctg aagaagcgaa ggacctcatc cagagactga tctgcagtag 1260
agaacgccgg ctggggcaga atggaataga ggatttcaaa aagcatgcgt tttttgaagg 1320
tctaaattgg gaaaatatac gaaacctaga agcaccttat attcctgatg tgagcagtcc 1380
ctctgacaca tccaacttcg acgtggatga cgacgtgctg agaaacacgg aaatattacc 1440
teetggttet cacacagget tttetggatt acatttgeca tteattggtt ttacatteac 1500
aacggaaagc tgtttttctg atcgaggctc tctgaagagc ataatgcagt ccaacacatt 1560
aaccaaagat gaggatgtgc agcgggacct ggagcacagc ctgcagatgg aagcttacga 1620
gaggaggatt cggaggctgg aacaggagaa gctggagctg agcaggaagc tgcaagagtc 1680
cacccagacc gtgcagtccc tccacggctc atctcgggcc ctcagcaatt caaaccgaga 1740
taaagaaatc aaaaagctaa atgaagaaat cgaacgcttg aagaataaaa tagcagattc 1800
aaacaggctc gagcgacagc ttgaggacac agtggcgctt cgccaagagc gtgaggactc 1860
cacgcagcgg ctgcggggc tggagaagca gcaccgcgtg gtccggcagg agaaggagga 1920
gctgcacaag caactggttg aagcctcaga gcggttgaaa tcccaggcca aggaactcaa 1980
agatgcccat cagcagcgaa agctggccct gcaggagttc tcggagctga acgagcgcat 2040
ggcagagctc cgtgcccaga agcagaaggt gtcccggcag ctgcgagaca aggaggagga 2100
gatggaggtg gccacgcaga aggtggacgc catgcggcag gaaatgcgga gagctgagaa 2160
gctcaggaaa gagctggaag ctcagcttga tgatgctgtt gctgaggcct ccaaggagcg 2220
caagettegt gageacageg agaacttetg caageaaatg gaaagegage tggaggeeet 2280
caaggtgaag caaggaggcc ggggagcggg tgccacctta gagcaccagc aagagatttc 2340
caaaatcaaa tccgagctgg agaagaaagt cttattttat gaagaggaat tggtcagacg 2400
tgaggcctcc catgtgctag aagtgaaaaa tgtgaagaag gaggtgcatg attcagaaag 2460
```

ccaccagctg gccctgcaga aagaaatctt gatgttaaaa gataagttag aaaagtcaaa 2520

gcgagaacgg cataacgaga tggaggaggc agtaggtaca ataaaagata aatacgaacg 2580 agaaagagcg atgctgtttg atgaaaacaa gaagctaact gctgaaaatg aaaagctctg 2640 ttcctttgtg gataaactca cagctcaaaa tagacagctg gaggatgagc tgcaggatct 2700 ggcagccaag aaggagtcag tggcccactg ggaagctcag attgcggaaa tcattcagtg 2760 ggtcagtgac gagaaagatg cccggggtta ccttcaagct cttgcttcca agatgaccga 2820 agagetegag getttgagga gttetagtet ggggteaaga acaetggaee egetgtggaa 2880 ggtgcgccgc agccagaagc tggacatgtc cgcgcggctg gagctgcagt cggccctgga 2940 ggcggagatc cgggccaagc agcttgtcca ggaggagctc aggaaggtca aggacgccaa 3000 cctcaccttg gaaagcaaac taaaggattc cgaagccaaa aacagagaat tattagaaga 3060 aatggaaatt ttgaagaaaa agatggaaga aaaattcaga gcagatactg ggctcaaact 3120 tccagatttt caggattcca tttttgagta tttcaacact gctcctcttg cacatgacct 3180 gacatttaga accageteag etagtgagea agaaacaeaa geteegaage eagaagegte 3240 cccgtcgatg tctgtggctg catcagagca gcaggaggac atggctcggc ccccqcagag 3300 gccatccgct gtgccgttgc ccaccacgca ggccctggct ctggctggac cgaagccaaa 3360 ageteaceag tteageatea agteettete eagecetaet eagtgeagee actgeacete 3420 cctgatggtt gggctgatcc ggcagggcta cgcctgcgag gtgtgttcct ttgcttgcca 3480 cgtgtcctgc aaagacggtg cccccaggt gtgcccaata cctcccgagc agtccaaqag 3540 gcctctgggc gtggacgtgc agcgaggcat cggaacagcc tacaaaggcc atqtcaaqqt 3600 cccaaagccc acgggggtga agaagggatg gcagcgcgca tatgcagtcg tctgtgagtg 3660 caagetette etgtatgate tgeetgaagg aaaateeace cageetggtg teattgegag 3720 ccaagtcttg gatctcagag atgacgagtt ttccgtgagc tcagtcctgg cctcagatgt 3780 cattcatgct acacgccgag atattccatg tatattcagg gtgacggcct ctctcttagg 3840 tgcaccttct aagaccagct cgctgctcat tctgacagaa aatgagaatg aaaagaggaa 3900 gtgggttggg attctagaag gactccagtc catccttcat aaaaaccggc tgaggaatca 3960 ggtcgtgcat gttcccttgg aagcctacga cagctcgctg cctctcatca aggccatcct 4020 gacagetgee ategtggatg cagacaggat tgcagtegge ctagaagaag ggetetatgt 4080 catagaggtc accogagatg tgatcgtccg tgccgctgac tgtaagaagg tacaccagat 4140 cgagcttgct cccagggaga agatcgtaat cctcctctgt ggccggaacc accatgtgca 4200 cctctatccg tggtcgtccc ttgatggagc ggaaggcagc tttgacatca agcttccgga 4260 aaccaaaggc tgccagctca tggccacggc cacactcaag aggaactctg gcacctgcct 4320 gtttgtggcc gtgaaacggc tgatcctttg ctatgagatc cagagaacga agccattcca 4380 cagaaagttc aatgagattg tggctcccgg cagcgtgcag tgcctggcgg tgctcaggga 4440 caggetetgt gtgggetace ettetgggtt etgeetgetg ageateeagg gggaegggea 4500 gcctctaaac ctggtaaatc ccaatgaccc ctcgcttgcg ttcctctcac aacagtcttt 4560 tgatgccctt tgtgctgtgg agctcgaaag cgaggagtac ctgctttgct tcagccacat 4620 gggactgtac gtggacccgc aaggccggag ggcacgcgcg caggagctca tgtggcctgc 4680 ggeteetgte geetgtagtt geageeceae ceaegteaeg gtgtacageg agtatggegt 4740 ggacgtcttt gatgtgcgca ccatggagtg ggtgcagacc atcggcctgc ggaggataag 4800 geceetgaae tetgaaggea eecteaaeet eeteaaetge gageeteeae gettgateta 4860 cttcaagagc aagttctcgg gagcggttct caacgtgccg gacacctccg acaacagcaa 4920 gaagcagatg ctgcgcacca ggagcaaaag gcggttcgtc ttcaaggtcc cagaggaaga 4980 gagactgcag cagaggcgag agatgcttag agacccagaa ttgagatcca aaatgatatc 5040 caacccaacc aacttcaacc acgtggccca catgggccca ggcgacggca tgcaggtgct 5100 catggacctg cctctgagtg ctgtgccccc ctcccaggag gaaaggccgg gccccgctcc 5160 caccaacctg gctcgccagc ctccatccag gaacaagccc tacatctcgt ggccctcatc 5220 aggtggatcg gagcctagcg tgactgtgcc tctgagaagt atgtctgatc cagaccagga 5280 ctttgacaaa gagcctgatt cggactccac caaacactca actccatcga atagctccaa 5340 ccccagegge ccacegagee ccaacteece ccacaggage cageteece tegaaggeet 5400 ggagcagccg gcctgtgaca cctgaagccg ccagctcgcc acaggggcca gggagctgga 5460 gatggcctcc agcgtcagtg ccaagactga gcgggccctc cagtgttgtc caaggaaatg 5520 tagaatcact ttgtagatat ggagatgaag aagacaaatc tttattataa tattgatcag 5580 ttttatgccg cattgttcgt ggcagtagac cacatctgtt cgtctgcaca gctgtgaggc 5640 gatgctgttc catctgcaca tgaaggaccc ccatacagcc tgtctcccac ccctgacaac 5700 ccgagagggc atatggggcc ctgccaacac cacttcctca gcagaaaccc gtcatgacgc 5760 ggctgcttcg gaagcagaca tctggggaca cagcctcagt acccagtctt ttccctagtt 5820 cctgaaactt tcctaggacc ttaagagaat agtaggaggt cctatagcat tcccagtgtc 5880 actagaattt tgaagacagg aaagtggagg ttagtctgtg gccttttttt catttagcca 5940

```
ttgcacagtc agctgcagaa gtcctgctga ccacctagtc atggacaaag gcccaggacc 6000 agtgacaccc tgcgtccctg tgtgcattaa gttcattctg ggtcgcagcc atgaagtgtc 6060 accagtatct actactgtga agtcagctgt gctgttttcc attcgcttcc acggcttctg 6120 cctcctgcca taaaaccagc gagtgtcgtg gtgcaggcag gccctgtggc ctgctgggc 6180 gagggaagtc agagccccag ggcgccacga agcagccact gggatacccc accccgccc 6240 gccctgccc cccccccc caccagtcct gccccgcat ggagccccg tgattagtag 6300 cccgtatgat cacgtagacc caccaacac actcctgcac actggccccg gcccacggca 6360 cagcaatccc ctgcgcgtgg atttcacctc accctttgta ccagatgttg agtgaccagc 6420 tctgtggccc tgtgtcgac gaggcttgtg attaactgtg gcggcagaca cagcttgtcc 6480 acagcttggg ccaggcttcc cctgtcctcc caccggtcgg ctgcttggca aggctgttca 6540 ggacgtgcac ttccccaagt cggcactgag tggcccagca ccgcctagcc ctgccaccc 6600 actgccctcc tgggccttct gctggatggg cacctgggg gttctggtt ttacttttt 6660 aatgtaagtc tcagtcttg taattaatta ttgaattgtg agaacattt tgaacaatt 6780 acctgtcaat aaagcagaag acggcagtt taaagttaaa aaaaaaaaa aaaaaaaaa 6780 aa
```

<210> 120 <211> 2201 <212> DNA

<213> Homo sapiens

<400> 120

caactacgag ccacgagttt gcagatgggg ctgctcggcg gcgcctgtgg ctgaggaga 60 gcagcggcgg cggggagcga ccgggagcgg cggcagcggc ggcgcggagg cqqctgaggt 120 gcgagccgga ctaaatcatt ttgctacttt aaaaaaatca cgaaagtaca ttatttgaag 180 tttggagaag aaagggattt ggtaacaaag gacagccatt tccattttaa gcagctaaac 240 agcaggagag atttctgtaa gaaggtacca gctcagattc cattgttcat cattttgcaa 300 tgcagcaagt cttggaaaac cttacggagc tgccctcgtc tactggagca gaagaaatag 360 acctaatttt cctcaaggga attatggaga atcctattgt aaaatcactt qctaaqqctc 420 atgagagget agaagattee aaactagaag etgteagtga eaataaettg gaattagtea 480 atgaaattct tgaagacatc actcctctaa taaatgtgga tgaaaatgtg gcagaattgg 540 ttggtatact caaagaacct cacttccagt cactgttgga ggcccatgat attgtggcat 600 caaagtgtta tgattcacct ccatcaagcc cagaaatgaa taattcttct atcaataatc 660 agttattacc agtagatgcc attcgtattc ttggtattca caaaagagct ggggaaccac 720 tgggtgtgac atttagggtt gaaaataatg atctggtaat tgcccgaatc ctccatgggg 780 gaatgataga tegacaaggt etaetteatg tgggagatat aattaaagaa gteaatggee 840 atgaggttgg aaataatcca aaggaattac aagaattact gaaaaatatt agtggaagtg 900 tcaccctaaa aatcttacca agttatagag ataccattac tcctcaacag gtatttgtga 960 agtgtcattt tgattataat ccatacaatg acaacctaat accttgcaaa gaagcaggat 1020 tgaagttttc caaaggagaa attcttcaga ttgtaaatag agaagatcca aattggtggc 1080 aggetageca tgtaaaagag ggaggaageg etggteteat tecaagecag tteetggaag 1140 agaagagaaa ggcatttgtt agaagagact gggacaattc aggacctttt tgtggaacta 1200 taagtagcaa aaaaaagaaa aagatgatgt atctcacaac cagaaatgca gaatttgatc 1260 gtcatgaaat ccagatatat gaggaggtag ccaaaatgcc tcccttccag agaaaaacat 1320 tagtattgat aggageteaa ggtgtaggee gaagaagett gaaaaacagg tteatagtat 1380 tgaatcccac tagatttgga actacggtgc catttacttc acggaaacca agggaagatg 1440 aaaaagatgg ccaggcatat aagtttgtgt cacgatctga gatggaagca gatattaaag 1500 ctggaaagta tttggaacat ggggaatatg aaggaaatct ctatggaacc aaaattgatt 1560 ctattcttga ggttgtccaa actggacgga cttgcattct ggatgtcaac ccacaagcac 1620 tgaaagtatt gaggacatca gagtttatgc cctatgtggt atttattgcg gctccggagc 1680 tagagacgtt acgtgccatg cacaaggctg tggtggatgc aggaatcact accaagcttc 1740 tgaccgactc tgacttgaag aaaacagtgg atgaaagtgc acggattcag agagcataca 1800 accactattt tgatttgatc atcataaatg ataatctaga caaagccttt gaaaaactgc 1860 aaactgccat agagaaactg agaatggaac cacagtgggt cccaatcagc tgggtttact 1920 gatgattcag taaggttaac aatgaaaatt aaactcttaa aaagtgactg caacaaataa 1980 accttctact gagaaaatac atcacagata gaagattatc tgctaagtcc aggcattttt 2040 atggtgtaga ttgaaataat agtacacttc tgaattttta tataaaatgt ggttggaagg 2100 tgtactaata tataatttat cttaattttt ctaactttgt atggataatc tttctattca 2160 2201 <210> 121 <211> 4917 <212> DNA <213> Homo sapiens <400> 121 atgtctggag aagtgcgttt gaggcagttg gagcagttta ttttggacgg gcccgctcag 60 accaatgggc agtgcttcag tgtggagacg ttactggata tactcatctg cctttatgat 120 gaatgcaata atteteeatt gagaagagag aagaacatte tegaataeet agaatggget 180 aaaccattta cttctaaagt gaaacaaatg cgattacata gagaagactt tgaaatatta 240 aaqqtqattq qtcqaqqaqc ttttqqqqaq gttqctqtaq taaaactaaa aaatqcagat 300 aaaqtqtttq ccatqaaaat attqaataaa tgggaaatgc tgaaaagagc tgagacagca 360 tgttttcgtg aagaaaggga tgtattagtg aatggagaca ataaatggat tacaaccttg 420 cactatgctt tccaggatga caataactta tacctggtta tggattatta tgttggtggg 480 qatttqctta ctctactcaq caaatttgaa gatagattgc ctgaagatat ggctagattt 540 tacttggctg agatggtgat agcaattgac tcagttcatc agctacatta tgtacacaga 600 gacattaaac ctgacaatat actgatggat atgaatggac atattcggtt agcagatttt 660 ggttcttgtc tgaagctgat ggaagatgga acggttcagt cctcagtggc tgtaggaact 720 ccagattata tctctcctga aatccttcaa gccatggaag atggaaaagg gagatatqqa 780 cctgaatgtg actggtggtc tttgggggtc tgtatgtatg aaatgcttta cggagaaaca 840 ccattttatg cagaatcgct ggtggagaca tacggaaaaa tcatgaacca caaagagagg 900 tttcagtttc cagcccaagt gactgatgtg tctgaaaatg ctaaggatcc tattcgaagg 960 ctcatttgtg gcagagaaca tcgacttggt caaagtggaa tagaagactt taagaaacac 1020 ccatttttca gtggaattga ctgggataat attcggaact gtgaagcacc ttatattcca 1080 gaagttagta gcccaacaga tacatcgaat tttgatgtag atgatgattg tttaaaaaat 1140 tctgaaacga tgccccacc aacacatact gcattttctg gccaccatct gccatttgtt 1200 qqttttacat atactagtag ctgtgtactt tctgatcgga gctgtttaag agttacggct 1260 qqtcccacct cactggatct tgatgttaat gttcagagga ctctagacaa caacttagca 1320 actgaaqctt atgaaagaag aattaagcgc cttgagcaag aaaaacttga actcagtaga 1380 aaacttcaag agtcaacaca gactgtccaa gctctgcagt attcaactgt tgatggtcca 1440 ctaacagcaa gcaaagattt agaaataaaa aacttaaaaag aagtaattga aaaactaaga 1500 aaacaagtaa cagaatcaag tcatttggaa cagcaacttg aagaagctaa tgctgtgagg 1560 caagaactag atgatgcttt tagacaaatc aaggcttatg aaaaacaaat caaaacgtta 1620 caacaagaaa gagaagatct aaataagctg gaagttcata cagaagctct agctgctgaa 1680 gcatctaaag acaggaagct acgtgaacag agtgagcact attctaagca actggaaaat 1740 gaattggagg gactgaagca aaaacaaatt agttactcac caggagtatg cagcatagaa 1800 catcagcaag agataaccaa actaaagact gatttggaaa agaaaagtat cttttatgaa 1860 gaagaattat ctaaaagaga aggaatacat gcaaatgaaa taaaaaatct taagaaagaa 1920 ctgcatgatt cagaaggtca gcaacttgct ctcaacaaag aaattatgat tttaaaagac 1980 aaattggaaa aaaccagaag agaaagtcaa agtgaaaggg aggaatttga aagtgagttc 2040 aaacaacaat atgaacgaga aaaagtgttg ttaactgaag aaaataaaaa gctgacgagt 2100 gaacttgata agcttactac tttgtatgag aacttaagta tacacaacca gcagttagaa 2160 gaagaggtta aagatctagc agacaagaaa gaatcagttg cacattggga agcccaaatc 2220 acagaaataa ttcagtgggt cagcgatgaa aaggatgcac gagggtatct tcaggcctta 2280 qcttctaaaa tqactgaaga attggaggca ttaagaaatt ccagcttggg tacacgagca 2340 acagatatgc cctggaaaat gcgtcgtttt gcgaaactgg atatgtcagc tagactggag 2400 ttgcagtcgg ctctggatgc agaaataaga gccaaacagg ccatccaaga agagttgaat 2460 aaagttaaag catctaatat cataacagaa tgtaaactaa aagattcaga gaagaagaac 2520 ttqqaactac tctcaqaaat cqaacaqctq ataaaqqaca ctqaaqaqct taqatctgaa 2580 aaqqqtataq aqcaccaaga ctcacagcat tctttcttgg catttttgaa tacqcctacc 2640 gatgetetgg ateaatttga aactgtagae tecaeteeae ttteagttea cacaecaace 2700 ttaaggaaaa aaggatgtcc tggttcaact ggctttccac ctaagcgcaa gactcaccag 2760

```
ttttttgtaa aatcttttac tactcctacc aagtgtcatc agtgtacctc cttgatggtg 2820
ggtttaataa gacagggctg ttcatgtgaa gtgtgtggat tctcatgcca tataacttgt 2880
gtaaacaaag ctccaaccac ttgtccagtt cctcctgaac agacaaaagg tcccctgggt 2940
atagateete agaaaggaat aggaacagca tatgaaggte atgteaggat teetaageea 3000
gctggagtga agaaagggtg gcagagagca ctggctatag tgtgtgactt caaactcttt 3060
ctgtacgata ttgctgaagg aaaagcatct cagcccagtg ttgtcattag tcaagtgatt 3120
gacatgaggg atgaagaatt ttctgtgagt tcagtcttgg cttctgatgt tatccatgca 3180
agtcggaaag atataccctg tatatttagg gtcacagctt cccagctctc agcatctaat 3240
aacaaatgtt caatcctgat gctagcagac actgagaatg agaagaataa gtgggtggga 3300
gtgctgagtg aattgcacaa gattttgaag aaaaacaaat tcagagaccg ctcagtctat 3360
gttcccaaag aggcttatga cagcactcta cccctcatta aaacaaccca ggcagccgca 3420
atcatagatc atgaaagaat tgctttggga aacgaagaag ggttatttgt tgtacatgtc 3480
accaaagatg aaattattag agttggtgac aataagaaga ttcatcagat tgaactcatt 3540
ccaaatgatc agcttgttgc tgtgatctca ggacgaaatc gtcatgtacg actttttcct 3600
atgtcagcat tggatgggcg agagaccgat ttttacaagc tgtcagaaac taaagggtgt 3660
caaaccgtaa cttctggaaa ggtgcgccat ggagctctca catgcctgtg tgtggctatg 3720
aaaaggcagg teetetgtta tgaactattt cagagcaaga eeegteacag aaaatttaaa 3780
gaaattcaag tcccatataa tgtccagtgg atggcaatct tcagtgaaca actctgtgtg 3840
ggattccagt caggatttct aagatacccc ttgaatggag aaggaaatcc atacagtatg 3900
ctccattcaa atgaccatac actatcattt attgcacatc aaccaatgga tgctatctgc 3960
gcagttgaga tctccagtaa agaatatctg ctgtgtttta acagcattgg gatatacact 4020
gactgccagg gccgaagatc tagacaacag gaattgatgt ggccagcaaa tccttcctct 4080
tgttgttaca atgcaccata tctctcggtg tacagtgaaa atgcagttga tatctttgat 4140
gtgaactcca tggaatggat tcagactctt cctctcaaaa aggttcgacc cttaaacaat 4200
gaaggatcat taaatctttt agggttggag accattagat taatatattt caaaaataag 4260
atggcagaag gggacgaact ggtagtacct gaaacatcag ataatagtcq qaaacaaatq 4320
gttagaaaca ttaacaataa gcggcgttat tccttcagag tcccagaaga ggaaaggatg 4380
cagcagagga gggaaatgct acgagatcca gaaatqagaa ataaattaat ttctaatcca 4440
actaatttta atcacatagc acacatgggt cctggagatg gaatacagat cctgaaagat 4500
ctgcccatga accctcggcc tcaggaaagt cggacagtat tcagtggctc agtcagtatt 4560
ccatctatca ccaaatcccg ccctgagcca ggccgctcca tgagtgctag cagtggcttg 4620
tcagcaaggt catccgcaca gaatggcagc gcattaaaga gggaattctc tggaggaagc 4680
tacagtgcca agcggcagcc catgccctcc ccgtcagagg gctctttgtc ctccggaggc 4740
atggaccaag gaagtgatgc cccagcgagg gactttgacg gagaggactc tgactctccg 4800
aggcattcca cagcttccaa cagttccaac ctaagcagcc ccccaagccc agtttcaccc 4860
cgaaaaacca agagcctctc cctggagagc actgaccgcg ggagctggga cccgtga
                                                                  4917
```